Fusion Requires Extreme Temperatures

To make fusion happen, we must force the atoms together. We do this by heating them to very high temperature and squeezing them under very high pressure.

Examples of Fusion Reactions	Temperature Needed
$D + D \rightarrow {}^{3}He + n + 3.2\ MeV$	400 Million Degrees
$D + D \rightarrow T + p + 4.0\ MeV$	400 Million Degrees
$D + T \rightarrow {}^{4}He + n + 17.6\ MeV$	45 Million Degrees
$D + {}^{3}He \rightarrow {}^{4}He + p + 18.3\ MeV$	350 Million Degrees

The reaction that needs the lowest pressures and temperatures is the fusion of "heavy hydrogen" (deuterium) with "heavy-heavy hydrogen" (tritium) to form helium and a neutron, releasing 17.6 MeV of energy. This reaction is the focus of the research aimed at developing fusion energy as a practical energy source for future generations.